

REMARKS

In the outstanding Office Action, the Examiner rejected claims 1-6, 13, 33-34, and 44-47 under 35 U.S.C. § 112, second paragraph as being indefinite; rejected claims 1-6, 13, 33-34, and 44-47 under 35 U.S.C. § 112, sixth paragraph for failing to specify a function; rejected claims 1-6, 13, 33 and 44-46 under 35 U.S.C. § 102(2) as being anticipated by U.S. Patent No. 6,330,375 (“Fishman”); and rejected claim 34 under 35 U.S.C. § 103(a) as being unpatentable over Fishman in view of Noe in the article “Polarization Mode Dispersion Compensation at 10, 20, and 40 GB/S With Various Optical Equalizers.”

By this amendment, Applicants have amended claims 1 and 13. Applicants have further withdrawn claims 33-34 without prejudice. Claims 1-6, 13, and 44-46 remain pending. Applicants traverse the rejection of these claims and request reconsideration based on the following remarks. Incidentally, Applicants note that the Examiner has withdrawn claim 47 from consideration. *See* Office Action Summary. Thus, Applicants will not direct any discussion towards claim 47.

Claim Rejections Under 35 U.S.C. § 112, Second Paragraph

The Examiner has rejected claims 1-6, 13, and 44-46 under 35 U.S.C. § 112, second paragraph, “as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.” Specifically, the Examiner has rejected claim 1 for having an insufficient basis for the claim limitations “said PMD emulator” and “said measuring means”; and claim 13 for having an insufficient basis for the claim limitation “said elements” in line 2.

Applicants have amended claim 1 in response to the Examiner’s rejection. Claim 1 now recites “a PMD emulator unit” in line 6 to provide an antecedent basis for “said PMD emulator unit” in lines 9 and 11. Applicants have further amended claim 1 to recite “a measurement unit”

in line 4 to provide an antecedent basis for the claim limitation “the measurement unit” in line 8, which replaced the limitation “said measuring means” that the Examiner rejected. Applicants submit that claim 1 now particularly points out and distinctly claims the subject matter that Applicants regard as the invention.

Applicants have also amended claim 13 in response to the Examiner’s rejection. Claim 13 now depends from claim 2 and recites “said PMD-involving elements”, which finds an antecedent basis in claim 2. Applicants submit that claim 13 now particularly points out and distinctly claims the subject matter that Applicants regard as the invention.

All other claims depend from one or more of the amended claims. Accordingly, Applicants respectfully request that the claim rejections of claims 1-6, 13, and 44-46 be withdrawn.

Claim Rejections Under 35 U.S.C. § 112, Sixth Paragraph

The Examiner has rejected claims 1-6, 13, and 44-46 under 35 U.S.C. § 112, sixth paragraph for failing to specify a function in a “means” clause. The means clause, recited in claim 1, is preceded by the words “a” and “measuring.” Without agreeing with the Examiner’s assertions, Applicants have amended claim 1 to remove the means clause and replace it with a claim limitation that recites “a measurement unit capable of measuring PMD-induced distortions.” All other rejected claims depend from claim 1. With this amendment, Applicants submit that the Examiner’s rejection has become moot and respectfully request that the claim rejections of claims 1-6, 13, and 44-46 be withdrawn.

Claim Rejections Under 35 U.S.C. § 102(e)

The Examiner has rejected claims 1-6, 13, and 44-46 under 35 U.S.C. § 102(e) as allegedly anticipated by U.S. Patent No. 6,330,375 (“Fishman”). Fishman, however, fails to

disclose all of the elements of amended claim 1. Specifically, Fishman fails to teach a system in which the “PMD emulator unit is connected to an input signal from a transmission system” as recited in Applicants’ amended claim 1. Thus, Applicants respectfully traverse this rejection and respectfully request reconsideration.

Fishman teaches a system in which:

The effect of polarization mode dispersion that an optical signal experiences as it propagates through an optical transmission fiber is compensated for at a receiver using a birefringent compensator.

Fishman, Abstract. Further, according to Fishman:

An adaptive, variable-birefringence compensator may be readily realized by disposing a polarization transformer . . . in series with an element that generates variable linear birefringence. Such variable birefringence may be generated by splitting the signal at the output of the polarization transformer into two orthogonal linear polarization states corresponding to the two PSPs of the fiber, and delaying one of the two polarization states by a variable amount of time, τ_c , using a respective time delay line (such as for example, the polarization mode dispersion emulator. . .).

Fishman, col. 2 line 61-col. 3 line 7. Thus, Fishman discloses a compensator unit that is composed of a polarization transformer connected in series with a PMD emulator. Furthermore, this embodiment disclosed by Fishman *splits* the input signal into two states at the output of the polarization transformer before sending *one* of the states through the PMD emulator unit, which acts as a delay line. The embodiment then re-combines the two states. As a result, only part of the signal to be compensated goes through the PMD emulator unit in Fishman. Thus, Fishman fails to teach or disclose a system in which the “PMD emulator unit is connected to an input signal from a transmission system” as recited in Applicants’ amended claim 1.

Finally, the Examiner states that Fishman discloses “an emulator unit (reference numeral 425 in Fig. 1).” Office Action, page 3. Reference numeral 425 shown in Figure 1, however, displays a compensator and not an emulator. The compensator contains:

[T]wo nearly identical sections of high birefringence single-mode fibers 435 and 445 which generate fixed differential time delays, τ_1 and τ_2 , respectively between light signals polarized along the slow and fast optical axis of the two fibers. . . . A second polarization transformer 440 inserted between fibers 435 and 445 [that] effectively controls the angle, θ_c , between the fast axis of fiber 435 and fiber 445 . . .

Fishman, col. 3, lines 10-18. Figure 1 further shows that compensator 425 contains a first polarization transformer 430 inserted between the input signal and fiber 435. Thus, Figure 1 discloses a compensator 425 in which two polarization transformers interact with two fibers of fixed differential time delay to provide PMD *compensation*. Because fibers 435 and 445 have a fixed differential time delay, however, the polarization transformers cannot interact with fibers 435 and 445 to equal the PMD distortion of the transmission fiber. Thus, compensator 425 fails to provide PMD *emulation* of the transmission fiber. Furthermore, compensator 425 contains other elements to assist it in compensating for the PMD distortion in the transmission fiber. These elements include a feedback signal 471, a high-speed photodetector 455, conventional amplifier 460, and electrical distortion analyzer 470. See Fishman, col. 3 lines 42-60; Fig. 1. Compensator 425 uses these elements to provide PMD *compensation* by controlling polarization transformers 430 and 440. See Fishman, Figure 1. Therefore, compensator 425 fails to teach or disclose a “PMD emulator unit” as recited in Applicants’ claim 1. Applicants accordingly submit that claim 1 is patentable over Fishman.

Claims 2-6, 13, and 44-46 all depend from amended claim 1 and require all of the limitations of claim 1. Therefore, Applicants submit that claims 2-6, 13, and 44-46 are also patentable over Fishman.

Claim Rejections Under 35 U.S.C. 103

The Examiner has rejected claim 34 under 35 U.S.C. § 103(a) as being unpatentable over Fishman in view of Noe in the article “Polarization Mode Dispersion Compensation at 10, 20,

and 40 GB/S With Various Optical Equalizers.” Applicants have withdrawn claim 34 without prejudice. Thus, this rejection is moot.

In view of the foregoing amendments and remarks, Applicant respectfully requests reconsideration and reexamination of this application and the timely allowance of the pending claims.

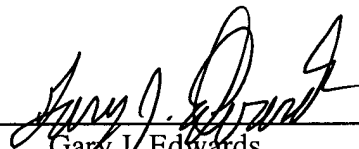
Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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